**EXCELLENCE QUESTIONS 2**

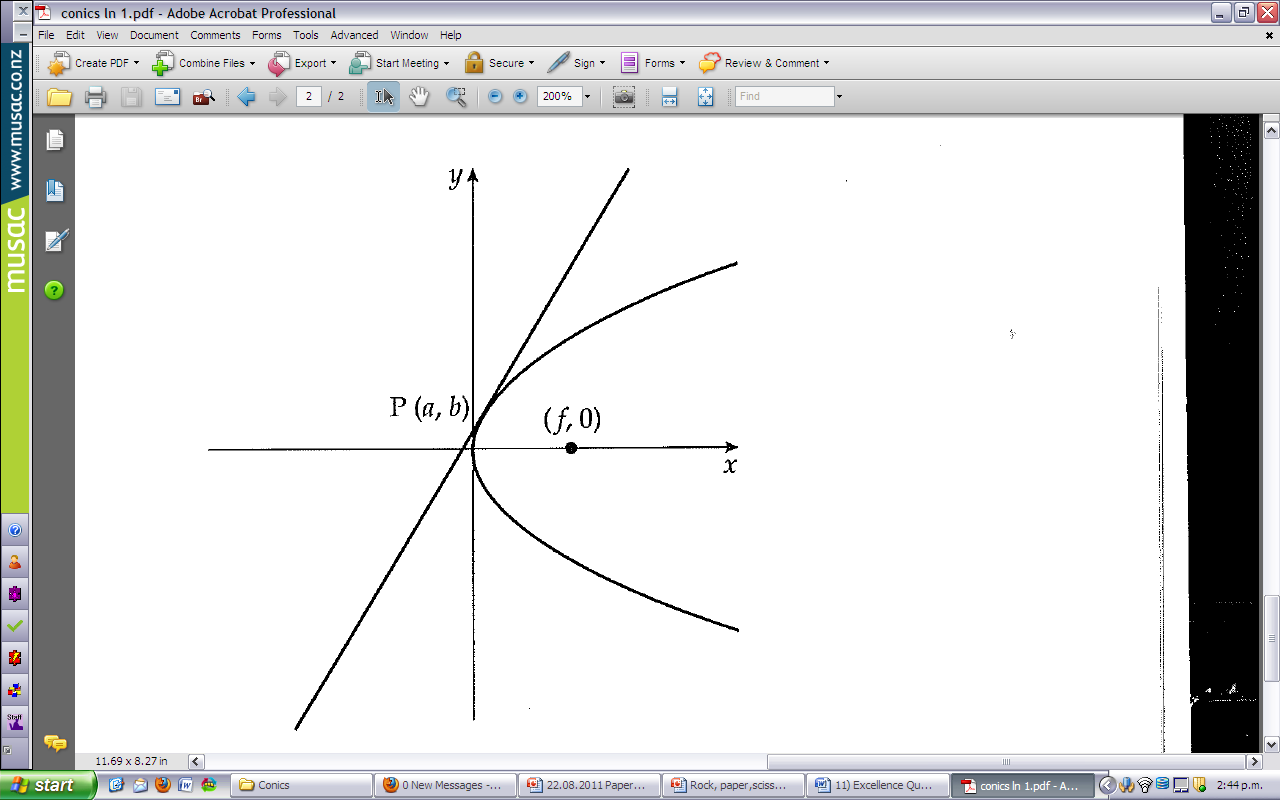
**Example 2**: *Proof*

A circle is defined by the equation . Show that the radius of this circle is

Completing the square for terms and terms:

So centre of circle is and radius is square root of the RHS terms: .

**Example 3:** *Chain of reasoning*

At the Pearl Insurance Building in Singapore, there is a steel-latticed radio mast. The radio receivers are parabolic in shape, as show in the diagram:

At the point P there is a steel support rod which

lies at a tangent to the parabola with focal point .

Write the equation of the support rod in terms

of and .

The general equation for a parabola is

where is the distance of the focus point from the

vertex. In this example, the value of is the constant .

So the equation for this parabola is .

Differentiate to get the gradient of the tangent: =>

The gradient at the point is:

Equation of tangent at point is:

multiply both sides by

Worksheet

* Excellence Revision

or